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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,421	05/10/2005	Martin Schober	66376-351-7	7973

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EXAMINER

VERDIER, CHRISTOPHER M

ART UNIT PAPER NUMBER

3745

DATE MAILED: 02/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/531,421	Applicant(s) SCHOBER ET AL.	
	Examiner Christopher Verdier	Art Unit 3745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4-15-05</u> . | 6) <input type="checkbox"/> Other: _____ |

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Receipt and entry of Applicants' Preliminary Amendment dated April 15, 2005 is acknowledged.

Information Disclosure Statement

The listing of references in the specification (pages 1-2) is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Oath/Declaration

The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

The specification to which it is directed is identified as being both attached to the declaration, and filed as PCT application PCT/AT2003/00312, on October 16, 2003, which are in conflict.

Specification

The abstract of the disclosure is objected to because it does not commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). A new abstract of the disclosure is required and

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must be presented on a separate sheet, apart from any other text. Correction is required. See MPEP § 608.01(b).

The abstract of the disclosure is objected to because it contains the phrases “The invention relates to” (line 1) and “The aim of the invention” (line 5) which are implied and should be deleted, and because it contains the legal term “Said” (line 6) which should be deleted. Correction is required. See MPEP § 608.01(b).

The disclosure is objected to because of the following informalities: Appropriate correction is required.

On page 1, line 17, “2,710580” should be changed to -- 2,710,580 --.

On page 2, line 22, “and” should be changed to -- an --.

On page 6, line 9, “comprised” should be changed to -- comprise --.

Examiner's Suggestions to Claim Language

The following are suggestions to improve the clarity and precision of the claims:

In claim 30, line 5, “preferably” may be deleted.

Claim Objections

Claims 17-32 are objected to because of the following informalities: Appropriate correction is required.

In claim 17, line 9, “that” should be deleted.

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In claim 21, line 2, -- at least one -- should be inserted before “blade”.

In claim 21, line 2, “the” (second occurrence) should be changed to -- an --.

In claim 27, line 2, “trapezoid” should be changed to -- trapezoidal --.

In claim 30, line 3, “the” should be changed to -- a --.

In claim 30, line 4, -- an -- should be inserted after “with”.

In claim 30, line 13, “that” should be deleted.

In claim 31, line 3, “conveying” should be changed to -- conveyed --.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 17-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 17, line 2, “especially” is indefinite, because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d). In claim 1, line 3, “the intake side” is unclear if this refers to the intake side of the pump, or the intake side of the impeller. In claim 17, line 5, claim 20, line 3, claim 30, lines 6-7, and claim 30, line 9, “the intake side” is unclear for the same reason. In claim 17, lines 8-9, “the pressure side opposite of the cover disk” is unclear if this refers to the pressure side of the pump, or the pressure side of the impeller. In claims 18-19 and 23-27, in lines 1-2 of these claims, “the blades” is inaccurate, because claim 17, line 4 recites “at least one blade”, and in the case of one blade, there would not be plural blades as claimed. In claim 23, line 2, “the pressure side” is

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unclear for the same reason set forth above. In claim 30, line 1, “especially” is indefinite, because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d). In claim 30, lines 12-13, “the pressure side opposite of the cover disk” is unclear if this refers to the pressure side of the pump, or the pressure side of the impeller. In claim 32, line 2, “the blades” is inaccurate, because claim 30, line 8 recites “at least one blade”, and in the case of one blade, there would not be plural blades as claimed.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 17-26 and 28-30, as far as they are definite and understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Hoglund 5,039,320. Note the impeller 10 for a pump 1, comprising a hub 18, a cover disk 35 which is disposed on the intake side and is provided with a central opening 36 for sucking in a conveyed medium, and with at least one blade 20 which is joined integrally with the cover disk on the intake side and is provided with an inner section located in the region of the central opening and an outer section located in the region of the cover disk, the impeller being provided with a completely open configuration on the pressure side opposite of the cover disk and the blade is curved in the interior section in a three-dimensional manner (note in figures 2 and 3 that the blade is curved both circumferentially and in an axial

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direction to the left of reference numeral 36 in figure 2) and is provided in the outer section with a substantially two-dimensional curvature. The blades are free from coverings, and the blades are curved in a two-dimensional manner in the region of the cover disk and are rectangular to the plane of the cover disk. An axial projection 24 is provided on the cover disk in the region of the central opening, which projection projects in the direction of the intake side. Concerning claim 21, the blade on the intake side is flush with a front edge of an axial projection (the element to the left of reference numeral 36 in figure 2). The cover disk is rounded off in the region of the central opening 36, and the blades are provided at least in the outer section on the pressure side with a face surface which is situated in a plane perpendicular to the axis of the impeller. The blades have a convex surface which converges smoothly from the inner section to the outer section, and the blades comprise a concave surface which converges with an edge (at the outer section of the blades) from the inner section to the outer section. The blades have in the outer section a substantially rectangular cross section. The impeller comprises unnumbered radial discharge openings. The scaled diameter of the opening of the cover disk corresponds to about 60 percent of the diameter of the impeller. Note the pump 1 with a bearing 9 in which a pump shaft 8 is held which rotatably passes through a wall 6, 7 of a housing and to which is fastened the impeller with its axial intake opening on the side of the housing wall opposite to the bearing.

Claims 17-26, 28-30, and 32, as far as they are definite and understood, are rejected under 35 U.S.C. 102(b) as being anticipated by United Kingdom Patent 1,277,416. Note the impeller 1 for a pump 2, comprising a hub 14, a cover disk 13 which is disposed on the intake side and is provided with an unnumbered central opening for sucking in a conveyed medium, and

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with at least one blade 22a which is joined integrally with the cover disk on the intake side and is provided with an inner section located in the region of the central opening and an outer section located in the region of the cover disk, the impeller being provided with a completely open configuration on the pressure side opposite of the cover disk and the blade is curved in the interior section in a three-dimensional manner and is provided in the outer section with a substantially two-dimensional curvature. The blades are free from coverings, and the blades are curved in a two-dimensional manner in the region of the cover disk and are rectangular to the plane of the cover disk. An axial projection (the unnumbered washer in figure 1) is provided on the cover disk in the region of the central opening, which projection projects in the direction of the intake side. Concerning claim 21, the blade on the intake side is flush with a front edge of an axial projection 4. The cover disk is rounded off in the region of the central opening, and the blades are provided at least in the outer section on the pressure side with a face surface which is situated in a plane perpendicular to the axis of the impeller. The blades have a convex surface which converges smoothly from the inner section to the outer section, and the blades comprise a concave surface which converges with an edge (at the outer section of the blades) from the inner section to the outer section. The blades have in the outer section a substantially rectangular cross section. The impeller comprises unnumbered radial discharge openings. The scaled diameter of the opening of the cover disk corresponds to about 35 percent of the diameter of the impeller. Note the pump 2 with a bearing 7 in which a pump shaft 5 is held which rotatably passes through a wall 3, 11 of a housing and to which is fastened the impeller with its axial intake opening on the side of the housing wall opposite to the bearing. The wall of the housing at 2 is directly adjacent to a face side of the blades.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 27, as far as it is definite and understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over United Kingdom Patent 1,277,416 in view of Wickoren 4,904,159. The United Kingdom Patent 1,277,416 discloses an impeller substantially as claimed as set forth above, including blades 22a having an outer section, but does not disclose that the blades in the outer section have at least a partly trapezoidal cross section.

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Wickoren shows an impeller having blades 52 with an outer section 60 that has a partly trapezoidal cross section with a sharpened inlet side edge that forms the partly trapezoidal cross section, for the purpose of severing debris in the inlet of the impeller.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the impeller of United Kingdom Patent 1,277,416 such that the blades in the outer section have at least a partly trapezoidal cross section with a sharpened inlet side edge that forms the partly trapezoidal cross section, as taught by Wickoren, for the purpose of severing debris in the inlet of the impeller.

Claim 31, as far as it is definite and understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Hoglund 5,039,320 in view of Fukazawa 5,242,268. Hoglund discloses an impeller substantially as claimed as set forth above, including a pump shaft 8, but does not disclose an axial face seal for sealing the pump shaft being provided in the wall of the housing, which seal is situated openly in the flow of the conveying medium.

Fukazawa (figure 1) shows a pump having pump shaft 15, with an axial face seal near 18 for sealing the pump shaft being provided in a wall of a housing 14, which seal is situated openly in the flow of conveying medium, for the purpose of sealing the pump shaft.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the pump of Hoglund such that it includes an axial face seal for

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sealing the pump shaft which is provided in the wall of the housing, which seal is situated openly in the flow of the conveying medium, as taught by Fukazawa, for the purpose of sealing the pump shaft.

Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Burgess and Onal are cited to show impellers having inlet to diameter ratios of .33 to .66 and at least 50 percent, respectively.

Holzwarth is cited to show an impeller with dual shrouds.

Niskanen and Finnish Patent 31,749 are cited to show impellers with blades having three dimensional curvature in inner regions and two dimensional curvature in outer regions.

United Kingdom Patent 466,259 is cited to show an impeller with a rounded inlet.

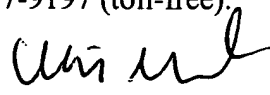
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Verdier whose telephone number is (571) 272-4824. The examiner can normally be reached on Monday-Friday from 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward K. Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C.V.
February 3, 2006



Christopher Verdier
Primary Examiner
Art Unit 3745